United States Department of the Interior

FISH AND WILDLIFE SERVICE

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10 May 2002

Mr. Dan Ray
CALFED Bay-Delta Program
1416 9th Street, Suite 630
Sacramento, CA 95814

Dear Mr. Ray,

On April 11, 2002 CALFED announced the initial funding recommendations for ecosystem restoration program proposals. The project entitled *Water Intake Screening and Intake Modifications at Coleman National Fish Hatchery* (Proposal No. 224) received the rating "Not Recommended for Funding." This particular project at the Coleman National Fish Hatchery (NFH) is located in a critical area (lower Battle Creek) and is associated (geographically) with a much larger investment in the Battle Creek watershed to restore natural populations of salmon and steelhead. The primary intent of the project is to avoid the impingement and/or entrainment of the naturally produced salmon and steelhead resulting from other restoration work within the system. The importance of this screening project has previously been identified in the Anadromous Fish Restoration Program Plan, and recognized by CALFED as a priority action associated with Battle Creek Restoration (Sacramento Region Priority Action #6; CALFED Draft Stage 1 Implementation Plan 2001). Therefore, we respectfully request CALFED's reconsideration of the entire project or aspects of the project (e.g., proceed with environmental permitting and physical modifications at Intake #1 and Intake #3) for funding, or, at least, consider the project for a "Directed Action in the Annual Workplan."

The proposal authors agree that much of the criticism surrounding the proposal centers around the cost of screening the Coleman NFH's emergency Intake (Intake #2) verses the time in operation and the associated level "take" of listed species at this site. The issue of allowable or acceptable "take" of listed species at the intake is, however, a legal/regulatory/technical issue between the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. Discussions/negotiations between the two agencies will address the issue of allowable/acceptable "take" (i.e., no take, issuance of incidental take statement or take variance). As the issue has yet to be resolved by the responsible agencies, we suggest comments from the Technical Review Panel in regard to whether "take" can or should occur may be inappropriate.

Additionally, there are some inaccuracies in the statements made by the Technical Review Panel regarding expected operation of the intake. The primary inaccuracy is the assumption by the Technical Review Panel that the only time the that Intake #2 at the Coleman NFH would be operated is in the event of a complete failure of the PG&E canal system (see the attached document for clarification). An important point to consider in this regard is that water delivery at the Coleman NFH cannot be lumped into the same category as general agricultural water diversions in the Central Valley. Specifically, the loss of available water for an agricultural purpose could be tolerated by the crop perhaps for days, however, large losses of adult and juvenile salmon and steelhead on-station can occur within a very short-time period if water flows are interrupted. For this reason, water delivery from all intakes must be readily available to avoid potential catastrophic loss of fish at the facility.

Discussions and analyses of potential improvements and screening options of the Coleman NFH water delivery Intakes have been ongoing for over four years. Many of the alternatives have been looked at several times by multiple groups with cost estimates developed no less than three times. The U.S. Fish and Wildlife Service is fully supportive of all of the restoration actions within the Battle Creek watershed, and is concerned that further delays in resolving at least some of the water diversion screening issues at the Coleman NFH could lead to undue losses of naturally-produced salmonids resulting from successful restoration actions. For this reason, we agree with the Technical Review Panel's recommendation that work on Intake #1 and Intake #3 "...be implemented on a fast track basis."

Thank for your time in reconsidering the *Water Intake Screening and Intake Modifications at Coleman National Fish Hatchery* project in whole or in part for funding, and we would welcome the opportunity to meet with the Selection Panel or Review Panel to resolve any outstanding discrepancies. Please feel free to contact me if you have any questions related to the proposal or issues associated with Coleman NFH.

Sincerely,

Scott Hamelberg
Project Leader

Enclosure

cc:
Mary Ellen Mueller, USFWS, CNO, Sacramento
Dale Pierce, USFWS, SFO, Sacramento
Sandy Osborn, USBR, Sacramento
Mike Aceituno, NMFS, Sacramento
Wayne White, USFWS, SFO, Sacramento
Dave Gore, USBR, Sacramento
Rick Wantuk, NMFS, Santa Rosa
Don Koch, CDFG, Redding

Points of Clarification on the use of
Coleman National Fish Hatchery's Water Intakes

Some additional points of clarification to our 2002 PSP follow. The points focus on four issues raised by the Technical Review Panel related to "take" issues and potential operation of Intake #2. They are: 1) Operation of Intake #1 or #3 as a primary Intake; 2) Relationship of the Coleman National Fish Hatchery (NFH) water delivery system to PG&E hydro-electric project operations; 3) Analysis of "Take"; and 4) Necessity of Monitoring.

Because of the information we offer below, we believe a number of statements made by the Technical Review Panel may be in error. Of primary concern is the assumption by the Technical Review Panel that the only time that Intake #2 at the Coleman NFH would be operated is in the event of a complete failure of the Pacific Gas and Electric's (PG&E) canal system. We agree that there may be physical remedies which, if implemented, may be consistent with assumptions made by the Technical Review Panel reducing reliance on the need to use Intake #2. However, any of these actions other than direct screening of Intake #2 (e.g., a penstock bypass at PG&E's Coleman Powerhouse) were not included in this or other proposals as they have not been identified as feasible in the near-term through previous Value Engineering studies or other general discussions.

Primary Intake

There are three water intakes at Coleman NFH identified as Intake #1, Intake #2 and Intake #3 (Figure 1). The hatchery's primary intake (Intake #1) is located in the tailrace of PG&E Coleman Powerhouse, on the north bank of Battle Creek. The tailrace empties into Battle Creek approximately 1.6 miles upstream of the hatchery property. Water taken through Intake #1 is conveyed to the hatchery through 2,700 feet of 46-inch diameter conveyance pipe, and then through 3,900 feet of open canal (Coleman Canal).

Coleman NFH Intake #2 is located on the south bank of Battle Creek, opposite of Intake #1. Intake #2 draws water directly from Battle Creek, and is used as an emergency back-up to Intake #1. The design of Intake #2 prevents diversion of water simultaneous with Intake #1 as Intake #2 shares the 46-inch conveyance pipe with Intake #1. Intake #2 supplies water to the hatchery only during periods when water cannot be supplied through Intake #1.

Intake #3 draws water directly from Battle Creek, approximately 0.4 miles downstream of Intake #2, and 1.2 miles upstream of the hatchery. Water diverted through Intake #3 is conveyed to the hatchery through 4,600 feet of 48-inch diameter pipeline.

For over four years discussions and analyses of potential modifications to the intakes have established that Intake #1 provides the highest quality water for use in hatchery operations. Intake #1 is the preferred point of diversion for Coleman NFH because it currently offers improved protection of naturally-produced anadromous fish and superior water quality for fish culture operations. Water diverted from Intake #1 is generally of higher quality (i.e., lower turbidity and cooler

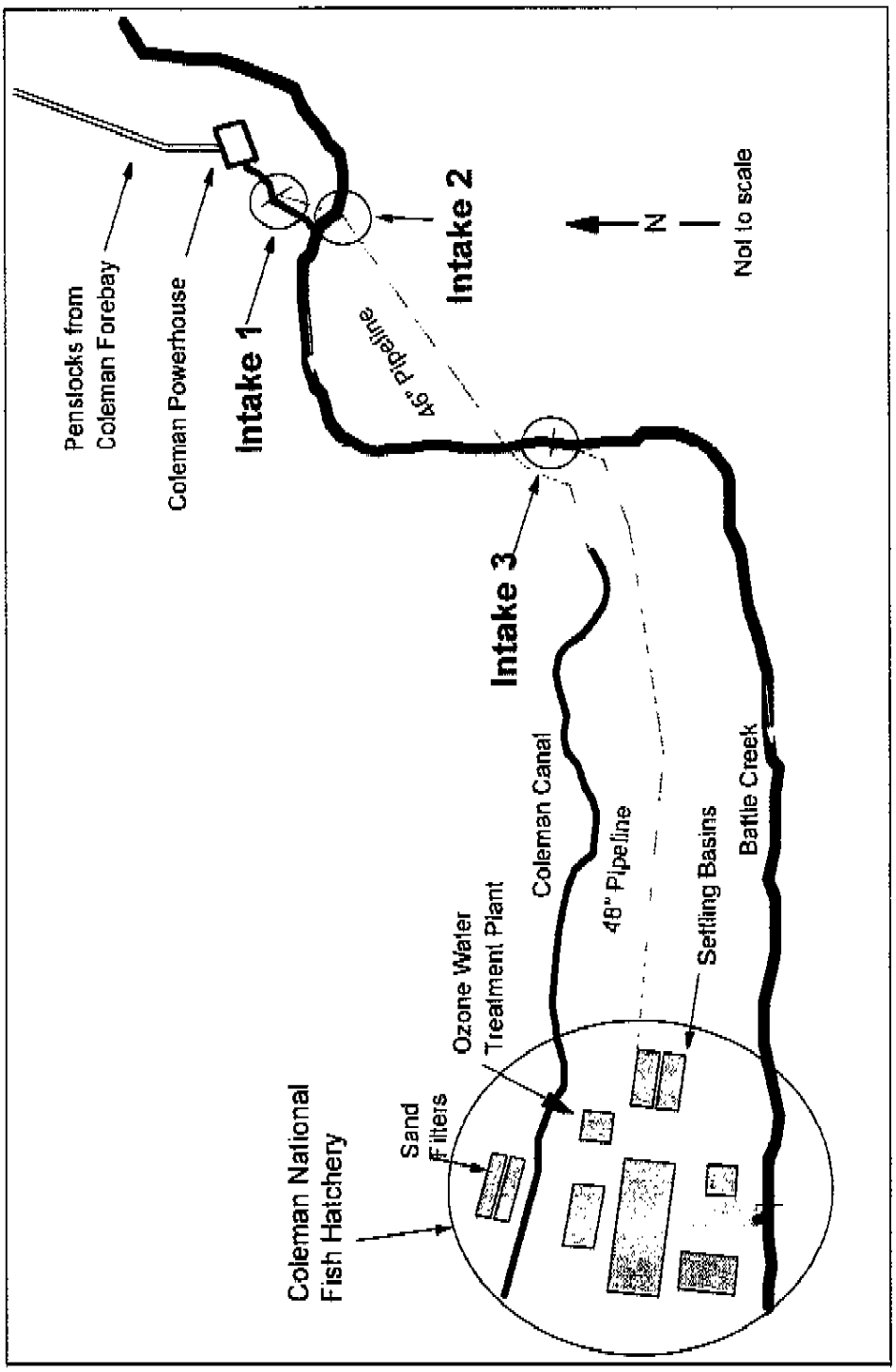

Figure 1. Existing water diversion and delivery system at Coleman National Fish Hatchery, Battle Creek, California.

temperature) than water diverted at other locations. Lower turbidity enhances the efficacy of the ozone water treatment plant, and lower water temperatures promote a less stressful rearing environment. In combination, this reduces potential for on-station disease outbreaks, and limits potential for disease transmission following the release of hatchery-origin juveniles. Intake #2 is the emergency intake and provides water whenever Intake #1 cannot supply water (see next section for specific examples).

The Technical Review Panel suggested that Intake #3 water could be used exclusively during certain months (i.e., May and June) to meet hatchery water needs. Water is typically not available at Intake #1 in the Coleman Powerhouse tailrace during portions of these months, as cleaning and maintenance operations are occurring on the entire PG&E water conveyance system. The suggestion to use Intake #3 exclusively during this time was offered as a potential way to avoid using Intake #2 during this time period. Water quality issues aside, if the operational scenario suggested by the review panel were adopted, "flowing" water (from Intake #1 or Intake #2) would still be required in the Coleman Canal as the "emergency" water source. As described above, water from Intake #1 or Intake #2 must traverse a pipeline that is 2,700 feet long. Water then surfaces and is carried in an the unlined Coleman Canal for an additional 3,900 feet. The Coleman Canal is estimated to be 10 feet wide and perhaps 5 to 6 feet deep, (the canal is actually trapezoidal in shape). Without adequate water flow through the canal, water quality quickly deteriorates (rapid plant growth and organic build-up, due to plant respiration and organic decomposition, and high temperatures). Although there are ways to discharge the canal water, rapid plant growth within the stagnant canal could overwhelm trash rack capabilities, and, especially in emergency situations, could become an unacceptably long process. Direct use of this stagnant water for fish production would also likely result in high mortality due to low dissolved oxygen levels and higher than tolerable water temperatures.

An important point to consider in this regard is that water delivery at the Coleman NFH cannot be lumped into the same category as general agricultural water diversions in the Central Valley. Specifically, the loss of available water for an agricultural purpose could be tolerated by the crop perhaps for days, however, large losses of adult and juvenile salmon and steelhead on-station can occur within a very short-time period if water flows are interrupted. For this reason, water delivery from all intakes must be readily available to avoid potential catastrophic loss of fish at the facility.There is no "automatic" switch over to another intake with Intake #3 as there is with intake #1. For that reason, when running on Intake #3, the canal remains charged with usable water in the event the facility requires manual changeover to the Coleman Canal water source (i.e., water provided by Intake #1 or #2).

Additionally, water from Intake #3 cannot be used to directly supply the required 13 cfs downstream water right. Operational requirements at the hatchery require that up to 13 cfs of water be provided to downstream users through the hatchery's Coleman Canal. Intake #3 is on a different piping system than the Coleman Canal and cannot be used to supply this downstream requirement. Therefore, aside from the need to maintain water quality within the Coleman Canal for emergency use purposes (see above), at minimum a low water delivery must be maintained from Intake #1 (or Intake #2 if Intake #1 is not available) to provide the downstream water right. As part of the proposal, it as mentioned that there are some efforts to examine alternatives means provide the downstream water (i.e., provide some of the required water to the downstream wetlands through the hatchery's pollution abatement pond). Additionally, the California Department of Fish and Game has discussed relinquishing the downstream

rights and dedicating them to in-stream use as portion of the downstream right is held by the California Department of Fish and Game.

In any case, for the above reasons and associated risks, some flow must currently be maintained through the Coleman Canal from Intake #1 (or Intake #2 if Intake #1 is not available). This is necessary to maintain high water quality (avoid critical low dissolved oxygen levels and high temperatures associated with pooling and stagnation within the canal without flowing water), and provide the downstream water delivery that is required through the canal. This currently requires the use of Intake #2 "whenever" water at Intake #1 is lost.

Relationship of the Coleman NFH water delivery system to PG&E's hydro-electric project operations

To analyze operational scenarios invoking the use of the emergency intake (Intake #2), one must understand how operations at PG&E's Coleman powerhouse affects operation of the Coleman NFH water supply system. Coleman NFH's Intake #1 is the primary intake and is located in the tailrace of the Coleman NFH powerhouse. The total length of the tailrace is roughly 200 yds. The banks of the tailrace are heavily lined with riparian vegetation including many deciduous trees. A trash rack at Intake #1 precludes woody debris from entering the hatchery system's main 46 inch water delivery pipeline (2,700 feet in length). The trash rack also prevent significant organic matter from entering the pipeline especially in the fall during heavy leaf drop.

Normal Operation

1) Under normal operating conditions water that will be diverted at Intake #1 is discharged from PG&E's Coleman Powerhouse forebay through the penstocks and through the single Francis-type turbine before being discharged into the tailrace.

2) A non-typical operating condition for PG&E would be a turbine trip event during which normal flow through the powerhouse is diverted from the turbine and is bypassed through a Howell-Bunger valve discharging into the tailrace, and water delivery is still achieved at Intake#1.

Emergency Operation

1) Turbine trips, load rejection or trash rack failures[1] or other maintenance needs require flow to be completely diverted from the powerhouse. This requires closure of the penstock valves. This penstock water shut-off valve is situated ABOVE the bypass pipe/valve, and results in backing up of flow from the forebay into the power canal and into an overflow ditch which

[1]

cascades into Battle Creek approximately 1 mile upstream of the powerhouse. In this case, no flow is available at Intake #1, so Intake #2 on Battle Creek automatically provides a portion of the water supply duties. The new bypass around the Inskip Powerhouse that is proposed in the Battle Creek Restoration Project will not rectify this situation as suggested by the Technical Review Panel. A bypass configuration to avoid water loss in the tailrace when the penstock valves are closed, has been discussed in many forums and a previous Value Engineering Study, but IS NOT part the Coleman NFH Intake screening and improvement proposal, as the modification would be entirely done on PG&E systems, nor is it part of the larger Battle Creek Restoration proposal. The Technical Review Panel may not have been aware of the situations or the mechanics of the system which could lead an "emergency" and the need to use Intake #2, and incorrectly assumed a proposed feature of the Battle Creek Restoration Project would reduce this need.

2) An event such as the failure of the Coleman Powerhouse Canal itself (which feeds the Coleman Powerhouse forebay), may be caused by a slide or other catastrophic failure. Such an event would prevent flow from reaching either the forebay or the overflow ditch. In this situation, the gates at the Coleman Diversion Dam (located several miles upstream), would be closed and the flow would be diverted back into Battle Creek. A failure such as this could cause a delay of as much as eight hours from the time the powerhouse shuts down and the full river flow is realized in the reaches of Battle Creek near Coleman NFH. In the past nine or more years, only one such event has occurred, but as discussed is not the only condition under which use of Intake #2 would be needed (see item 1 above). This scenario, the Technical Review Panel does discuss, but, inappropriately characterized this situation as the **"ONLY"** time Intake #2 would be used.

Analysis of Take

The Technical Review Panel suggested the Take Analysis presented in the proposal was "flawed," since the analysis assumed use at Intake #2 at all times when Intake #1 was down. For the reasons expressed above, Intake #2, is, in fact, in use, to some degree "whenever" water availability at Intake #1 is lost.

Necessity of Monitoring

The Technical Review Panel stated that the 1,000 hours of monitoring described in the proposal was excessive or unnecessary. This statement seems directly counter to the need for short-term compliance monitoring and is in direct opposition to advice and consideration received by a member of the CALFED Science Board (Dr. Peter Moyle, personal communication, April, 2002).